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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

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Additional inventors are being named on the _____ separately numbered sheets attached hereto

TITLE OF THE INVENTION (280 characters max)

A DISPENSER FOR HOLDING A MEANS FOR DISPENSING UNITS

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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

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Respectfully submitted,
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REGISTRATION NO. 35,094
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60/475505

A DISPENSER FOR HOLDING A MEANS FOR DISPENSING UNITS

The present invention relates to a dispenser for holding a means for dispensing units, such
5 as pills, tablets, sweets, which dispenser is resistant (or prevents) children's access to the units. This holding means may be a blister card or other means holding the units and from which a user may access one or more units. The dispenser performs the function of preventing (or making difficult) access to the units when the holding means is held by the dispenser.

10

A number of attempts have been made to make tablet/pill dispensers resistant to children's access attempts. Attempts of this type may be seen in: EP-A1-1002744 and 1293436 as well as US-A-4,120,400 and US-2003-047482.

15

In general, two manners exist of preventing children's access to medication or the like: hiding the release mechanism of the medication or requiring a release force larger than what a normal child is able to exert. The mechanism may be hidden by e.g. requiring the combined operation of multiple buttons or the like, where the child would normally focus only on one. The present invention may use either of these manners – or a combination
20 thereof.

In a first aspect, the invention relates to a dispenser for holding a means for dispensing units,

25

- the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
- the dispenser comprising:
 - o a slot having an opening for receiving the holding means,
 - o means for preventing access to the units from the predetermined surface, when the holding means is received in the slot,
 - o means for engaging the holding means, when the holding means is received in the slot, and
 - o means for releasing the engaging means,

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wherein the engaging means comprise releasable biasing means for exerting a friction force to a surface of the holding means in order to prevent or make difficult removal thereof from the dispenser.

5

In the present context, the units may be any type of units useful to persons, but primarily units which it is not desired that children get access to, such as medication, cigarettes, toxic or otherwise dangerous or unhealthy substances.

- 10 A normal manner of providing and dispensing e.g. medication is the use of a blister pack having a sheet of plastic material having a number of blisters into which the medication or other units is provided and which blisters are closed by a metal foil which is breakable in order to gain access to the medication.
- 15 In blister packs, the breakable foil defines the predetermined surface.

Other types of holding means may be means having as surface which may be openable, rupturable, pre-scored, closable or the like in order to gain access to the units.

- 20 Preferably, the holding means comprises a plurality of units individually dispensable or dispensable in smaller quanta, so that also less capable persons may dispense the units with no errors or problems.

A number of manners exist of preventing access to the units at the predetermined surface.

- 25 Such manners will depend on how access is provided via the surface. If the units are dispensable via a single opening, preventing access to that opening itself suffices, whereas multiple openings (as will be seen in blister packs) will require preventing access to multiple openings. Preventing access to an opening may merely require preventing e.g. a unit (having a given physical extension) from exiting the hole. Thus, hermetical or total sealing of the opening may not be required. It may suffice to only block part of the opening.
- 30

Preferably, the slot is adapted to fully receive the holding means. As will become clear further below, the slot may not be closed but may be open, as long as the preventing operation is fulfilled.

5 The engagement between the holding means and the dispenser is a friction engagement. This has the advantage that prior art holding means, such as blister cards or the like, may be used. If the engagement was an engagement wherein an element was introduced into e.g. a hole or the like in a holding means, this might require the design and production of a new holding means.

10

In the present context, the engagement makes it difficult – or prevents – to remove the holding means from the dispenser and thereby gain access to the units via the predetermined surface. In this respect, this will normally mean that a child, using his//her fingers, will not be able to overcome the engagement/friction and remove the holding means. Also, normally, this will mean that the dispenser is not harmed, destroyed or otherwise altered unallowably.

15

Preferably, the releasable biasing means is adapted to exert a first friction during movement of the holding means into the dispenser and a second, higher, friction during removal of the holding means from the dispenser, when the releasing means is not operated.

20

This higher friction may require a force for removal of the holding means, this force exceeding any predetermined force, a “standard” child is able to provide.

25

Then, the releasing means could be adapted to have the biasing means exert a third friction during removal of the holding means from the dispenser, when the releasing means is operated, the third friction being lower than the second friction. This third friction may, in principle, be zero. The important factor is that it is sufficiently low for the user to be able 30 to remove the holding means from the dispenser.

In one embodiment, the releasable biasing means comprises at least one leaf spring having two ends, one end engaging the dispenser and the other end being positioned so as to

engage the holding means when received in the dispenser, the spring being positioned so that the one end is positioned closer to the opening than the other end.

5 In this situation, an attempt to extract the holding means from the dispenser will require the leaf spring to compress (the other end being forced toward the one end). Then, the dispenser may be designed so that the leaf spring is not able to be compressed or moved in this manner, or the leaf spring may be designed so that the force required to obtain this compression exceeds a predetermined force.

10 In this embodiment, the at least one leaf spring preferably has a longitudinal direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot. Normally, this direction is also in the direction of a longitudinal axis of the slot or the holding means.

15 Normally, the releasing means is adapted to remove the engagement between the leaf spring and the holding means. Then, the releasing means are preferably adapted to move the other end of the leaf spring in a direction away from the holding means. Preferably, the releasing means is adapted to be translated in a longitudinal direction of the spring (or the holding means), the releasing means having means for engaging the spring and maintaining at least part of the spring away from the holding means. This engaging means may translate along the spring – toward the other end – and maintain the parts of the spring engaged by the engaging means in a position away from the holding means.

20 In another embodiment, the releasable biasing means comprises an element rotatable around a predetermined axis and having a part adapted to exert the friction force, when the element is rotated into a first position, the releasing means being adapted to rotate the element to a second position where a lower friction (such as no friction) is exerted by the element. This may be a rigid arm engaging the holding means.

25 Then, the releasable biasing means could further comprise means for biasing the element toward the holding means, when the element is in the first position. This biasing means may provide a predetermined biasing either toward the holding means or between the

holding means and the dispenser (so as to require a predetermined minimum force in order to overcome the friction and remove the holding means from the dispenser).

5 In one embodiment, the element comprises one or more edge parts adapted to engage the holding means, when the element is in the first position. A plurality of edge parts may increase the friction or ensure that a single edge part getting rounded in time does not destroy or reduce the efficiency of the engagement.

10 Preferably, the predetermined axis is at least substantially perpendicular to a direction of movement of the holding means during reception in the slot. Especially when the axis of rotation is positioned closer to the opening than the part adapted to exert the friction, it is seen that the rotatable element will require a deformation either of the dispenser or the holding means in order for the rotatable element to allow the holding means to travel out of the slot – as long as the engagement is maintained.

15

In a second aspect, the invention relates to a dispenser for holding a means for dispensing units,

- 20 - the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
- the dispenser comprising:
 - o an opening for receiving the holding means and
 - o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
 - o means for engaging the holding means, when the holding means is received by the dispenser, and
 - o means for releasing the engaging means,

25 wherein:

30 - the engaging means comprises two end parts, the engaging means engaging the dispenser at one end part and the holding means at another end part, the other end

- part being movable between a first position, in which it does not engage the holding means to any substantial degree, and a second position, in which it engages the holding means,
- the releasing means is translatable in a direction at least substantially parallel to the predetermined surface of the holding means, translation in the direction moving the engaging means between the first and second positions.

5 In the present context, "to any substantial degree" will mean that an engagement may, in fact, occur, but that a user will be able to remove the holding means from the dispenser.

10

Preferably, the releasing means are adapted to be engaged by a user at one or more outer surface(s) of the dispenser. In a preferred embodiment, the releasing means comprise two engaging means and two releasing means, one releasing means releasing one engaging means, the releasing means being engageable from two opposite outer surfaces of the 15 dispenser. Preferably, the two engaging means are independent in the sense that disengaging one will still leave the other one engaging the holding means, so that both need to be disengaged before the holding means may be removed (without exerting excessive force or brutality).

20

In one embodiment, the engaging means comprises at least one leaf spring having two ends, one end engaging the dispenser and the other end being positioned so as to engage the holding means when received in the dispenser, the spring being positioned so that the one end is positioned closer to the opening than the other end. Then, the at least one leaf 25 spring may have a longitudinal direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot (normally a longitudinal axis of the slot). Also,

the releasing means is preferably adapted to remove the engagement between the leaf spring and the holding means, such as wherein the releasing means are adapted to move the other end of the leaf spring in a direction away from the holding means.

30

Preferably, the releasing means is adapted to be translated in a longitudinal direction of the spring (or the holding means), the releasing means having means for engaging the spring

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and maintaining at least part of the spring away from the holding means. This release movement is not as obvious to children as a simple push button operation.

In another embodiment, the engaging means comprises an element rotatable around a predetermined axis and having a part adapted to engage the holding means, when the element is rotated into the first position, the releasing means being adapted to rotate the element to the second position where a lower engagement (such as no friction) is exerted by the element. Then, the engaging means could further comprise means for biasing the element toward the holding means, when the element is in the first position. Also, the element could comprise one or more edge parts adapted to engage the holding means, when the element is in the first position.

The predetermined axis is preferably at least substantially perpendicular to a direction of movement of the holding means during reception in the slot, and the axis of rotation is preferably positioned closer to the opening than the part adapted to exert the friction.

A third aspect of the invention relates to a dispenser for holding a means for dispensing units,

20 - the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
 - the dispenser comprising:
 o an opening for receiving the holding means,
 o means for preventing access to the units from the predetermined surface,
25 when the holding means is received by the dispenser,
 o means for engaging the holding means, when the holding means is received by the dispenser, and
 o means for releasing the engaging means,
30 wherein:
 - the engaging means comprises two end parts, the engaging means engaging the dispenser at one end part and the holding means at another end part, the other end part being movable between a first position, in which it does not engage the

holding means to any substantial degree, and a second position, in which it engages the holding means, the one end being positioned closer to the opening than the second end.

5 Again, in the present context, the "to any substantial degree" will mean that the user may, in fact, remove the holding means from the dispenser, and this friction may be defined on beforehand.

10 As described above, this design will require the rotatable element to deform or displace either the holding means or the dispenser, when it is attempted to remove the holding means. Preferably, the holding means deviates from a shape which is circular around an axis of movement/rotation of the engaging means.

15 In one embodiment, the engaging means is rotatable around a predetermined axis at the one end part and comprises means for exerting a friction force, when the engaging is rotated into the second position, the releasing means being adapted to rotate the element to a first position, where a lower friction (such as no friction) is exerted by the element.

20 Preferably, the holding means is maintained in a plane (straight or bent) which intersects the circle defined by the engaging means (when rotated around the axis) in at least two points. In this manner, when the engaging means are at least substantially stiff, the deformation/movement is especially required for removal of the holding means.

25 Preferably, the predetermined axis is at least perpendicular to a direction of movement of the holding means during reception in the dispenser.

In a preferred aspect of this embodiment, the engaging means further comprises means for biasing the element toward the holding means, when the engaging means is in the first position.

30

Also, the engaging means could comprise one or more edge parts adapted to engage the holding means, when the element is in the first position.

In another embodiment, the engaging means comprises at least one leaf spring. Then, the at least one leaf spring could have a longitudinal direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot (which direction is normally 5 along a longitudinal axis of the slot). Also, the releasing means could be adapted to remove the engagement between the leaf spring and the holding means, and the releasing means may be adapted to move the other end of the leaf spring in a direction away from the holding means. This may be obtained when the releasing means is adapted to be translated in a longitudinal direction of the spring (or the holding means), the releasing means having 10 means for engaging the spring and maintaining at least part of the spring away from the holding means.

In general, it may be desired that the dispenser is adapted to maintain the holding means in a bent shape when received in the slot. This bent shape may be both pleasing to the eye 15 and have advantages in that the shape of a bent element may be better defined. In the present context, a well-defined shape and position of the holding means will increase the precision and predictability of the engagement and thereby the child resistance provided.

A bent shape or biased shape of the holding means may be provided when the dispenser is 20 adapted to exert a force to two opposite side portions or edge portions of the holding means.

Another feature of the preferred embodiment of the present invention is one wherein the dispenser comprises an elongated opening or slot extending in a longitudinal direction of 25 the holding means, when it is received in the slot, the opening or slot being adapted to have a user access the holding means through the slot. Thus, the user may use this slot to engage the holding means and slide the holding means into and out of the dispenser.

A fourth aspect of the invention relates to a dispenser for holding a means for dispensing 30 units,

- the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,

- the dispenser comprising:
 - o an opening for receiving the holding means,
 - o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
 - o means for engaging the holding means, when the holding means is received by the dispenser, and
 - o means for releasing the engaging means,

5 wherein:

- 10 - the dispenser further comprises means for maintaining the first surface at or in a predetermined plane, when the holding means is received by the dispenser,
- the engaging means comprises means for abutting an edge portion, of the holding means, facing the opening, when the holding means is received in the opening, the abutting means having an abutting surface facing the edge portion of the holding means, extending at an angle to the predetermined plane, and a predetermined distance away from the plane, and
- the releasing means comprises means for displacing the edge portion of the holding means at least the predetermined distance away from the plane.

15

- 20 In the present context, the predetermined plane may be any plane and may have any shape, such as straight or bent.

25 The abutting surface may extend at any angle to the plane, but the angle is preferably 90° or close thereto in order to provide a sufficient abutment and child resistance.

25

The predetermined distance will normally be the distance which the holding means may be displaced in order to overcome the engagement with the abutment surface. The larger the surface, the larger the displacement.

30 In the present context, the edge portion may be part of an outer periphery of the holding means or it may be an inner edge portion, such as part of a hole or indentation of the holding means.

In fact, a dispenser may be especially suited for a given holding means (or a holding means holding a specific or predetermined type of unit), by providing one or more holes, indentations, or edges at predetermined positions, positions corresponding to one or more positions of abutting surfaces of the dispenser. A holding means not having the edge parts

5 at the correct positions may not be held/maintained in the dispenser, whereby the child resistance is lost.

Preferably, the maintaining means is adapted to bias the holding means against one or more surface parts of the dispenser, the surface part(s) defining the predetermined plane.

10 Thus, this biasing may help the maintaining the holding means in the desired shape – and may, in fact, require only surface parts for abutting the holding means only at certain positions or places (the positions where the biasing force needs to be countered).

15 Preferably, the abutting edge portion extends the predetermined distance away from the surface part(s). Also, preferably, the displacing means is adapted to displace the edge portion at least the predetermined distance away from the surface part(s).

20 In one embodiment, the displacing means is positioned in a part of the dispenser also defining the surface part(s), the displacing means being adapted to displace the edge portion in a direction at an angle to the predetermined plane.

This part of the dispenser may be an end portion thereof or a relatively small distance from the surface part(s). The part may also be a monolithic or assembled part forming, together with other parts, the dispenser.

25 Preferably, the displacing means is adapted to displace the holding means close to the edge part(s) engaging the surface part(s) in order to e.g. be able to better control the displacement.

30 In the preferred embodiment, the displacing means is engageable by a user from one or more outer surface part(s) of the dispenser. Thus, the dispenser may comprise, at the outer surface part and in the part(s) of the dispenser defining the surface part(s), a resilient or

deformable element adapted to be deformed or displaced by the user so as to displace the edge portion of the holding means.

In one embodiment, the predetermined surface part(s) of the holding means is/are adapted

5 to face the surface part(s).

In that or another embodiment, the edge portion of the holding means is an outer edge portion of the holding means.

10 Also, the engaging means may be displaceable in a direction at least substantially along the predetermined plane, the dispenser comprising means for allowing a part of the holding means adjacent to the edge portion to bend away from the predetermined plane due to the biasing. Again, the plane may be bent or otherwise not straight, and as the displacing of the engaging means may be a linear displacement, the direction of the displacement may be in

15 the direction of the plane at one or more predetermined positions thereof – such as at the position (e.g. at a longitudinal position of the dispenser or holding means) at which the displacement takes place.

The predetermined plane may have a bent shape.

20

A fifth aspect of the invention relates to a dispenser for holding a means for dispensing units,

25

- the holding means comprising a plurality of cavities each holding one or more units to be dispensed, each cavity being accessible from a predetermined surface of the holding means, the holding means having at least one portion protruding from the predetermined surface or a surface parallel there to,
- the dispenser comprising:

30

- o an opening for receiving the holding means,
- o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
- o means for engaging the holding means, when the holding means is received by the dispenser, and

- o means for releasing the engaging means,

wherein:

5 - the engaging means comprises means for abutting at least one protruding portion at a part thereof facing the opening.

The holding means of this aspect may be a blister card where the cavities are the individual blisters. In that respect, the engaging means engages the outer side part(s) of one or more blister(s). This provides a good support for engagement and reduces the requirements as to 10 friction etc. in order to obtain a sufficient child resistance and resistance to unauthorized removal of the holding means.

As mentioned above, in one embodiment, the engaging means comprises at least one leaf spring having two ends, one end engaging the dispenser and the other end being positioned 15 so as to engage the holding means when received in the dispenser, the spring being positioned so that the one end is positioned closer to the opening than the other end. Then, the at least one leaf spring could have a longitudinal direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot (normally a longitudinal axis 20 of the slot).

Also, the releasing means is preferably adapted to remove the engagement between the leaf spring and the holding means. Then, the releasing means could be adapted to move the other end of the leaf spring in a direction away from the holding means. This may be 25 obtained when the releasing means is adapted to be translated in a longitudinal direction of the spring (or the holding means), the releasing means having means for engaging the spring and maintaining at least part of the spring away from the holding means (translated part).

30 In another embodiment, the engaging means comprises an element rotatable around a predetermined axis and having a part adapted to engage the holding means, when the element is rotated into a first position, the releasing means being adapted to rotate the element to a second position where at least substantially no engagement takes place

between the engaging means and the holding means. Then, the engaging means could further comprise means for biasing the element toward the holding means, when the element is in the first position.

5 Also, the element could comprise one or more edge parts adapted to engage the holding means, when the element is in the first position.

In addition, the predetermined axis is preferably at least substantially perpendicular to a direction of movement of the holding means during reception in the slot. Also, preferably, 10 the axis of rotation is positioned closer to the opening than the part adapted to exert the friction.

Also in this aspect, in a preferred embodiment, the dispenser comprises an elongated opening or slot extending in a longitudinal direction of the holding means, when it is 15 received in the slot, the opening or slot being adapted to have a user access the holding means through the slot (slide in/out).

Also, as mentioned above, the dispenser is preferably adapted to maintain the holding means in a bent shape when received in the slot.

20

In general, in any of the above aspects, the dispenser may further comprise a biasing means adapted to be biased by the holding means when received in the slot and which is adapted to move the holding means in a direction out of the slot, when the releasing means are operated. In that manner, operating the releasing means may bring the holding means 25 outwardly to a position where it is more easily engageable by the user.

Also, the releasing means may comprise one or more push buttons or rotatable member(s), pushing the button(s) toward or into the dispenser or rotating the one or more members releasing the engaging or biasing means.

30

In a sixth aspect, the invention relates to a method of operating a dispenser for holding a means for dispensing units,

- the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
- the dispenser comprising:
 - o a slot having an opening for receiving the holding means,
 - o means for preventing access to the units from the predetermined surface, when the holding means is received in the slot,
 - o means for engaging the holding means, when the holding means is received in the slot, and
 - o means for releasing the engaging means,

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10

the method comprising the step of having a releasable biasing means of the engaging means exert a friction force to a surface of the holding means in order to prevent or make difficult removal thereof from the dispenser.

15 In one embodiment, the releasable biasing means exerts a first friction during movement of the holding means into the dispenser and a second, higher, friction during removal of the holding means from the dispenser, when the releasing means is not operated. Then, the biasing means may exert a third friction during removal of the holding means from the dispenser when the releasing means is operated, the third friction being lower than the

20 second friction.

In one embodiment, the releasable biasing means comprises at least one leaf spring having two ends, one end engaging the dispenser and the other end engaging the holding means when received in the dispenser, the spring being positioned so that the one end is

25 positioned closer to the opening than the other end. Then, the at least one leaf spring may have a longitudinal direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot (normally a longitudinal axis of the slot).

30 Also, preferably, the method further comprises a releasing step wherein the releasing means removes the engagement between the leaf spring and the holding means. Then, the releasing means may move the other end of the leaf spring in a direction away from the holding means. This may be obtained when the releasing means are translated in a

longitudinal direction of the spring (or the holding means), the releasing means having means for engaging the spring and maintaining at least part of the spring away from the holding means.

- 5 In another embodiment, the releasable biasing means are rotated around a predetermined axis and having a part exerting the friction force, when the element is rotated into a first position, the releasing means rotating the element to a second position where a lower friction (such as no friction) is exerted by the element. Then, the releasable biasing means could further comprise means for biasing the element toward the holding means, when the
- 10 element is in the first position.

Also, the engaging step may comprise having one or more edge parts of the releasable biasing means engage the holding means, when the element is in the first position, the rotation may be performed around a predetermined axis which is at least substantially

- 15 perpendicular to a direction of movement of the holding means during reception in the slot, and the axis of rotation may be positioned closer to the opening than the part adapted to exert the friction.

In a seventh aspect, the invention relates to a method of operating a dispenser for holding a

- 20 means for dispensing units,

- the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
- the dispenser comprising:
 - 25 o an opening for receiving the holding means,
 - o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
 - o means for engaging the holding means, when the holding means is received by the dispenser, and
- 30 o means for releasing the engaging means,

wherein:

5 - the engaging means comprises two end parts, the engaging means engaging the dispenser at one end part and the holding means at another end part, the other end part being movable between a first position, in which it does not engage the holding means to any substantial degree, and a second position, in which it engages the holding means

10 the method comprising a releasing step wherein the releasing means is translated in a direction at least substantially parallel to the predetermined surface of the holding means, thereby moving the engaging means between the first and second positions.

15 10 Then, the releasing means are preferably engaged by a user at an outer surface of the dispenser, and the releasing means preferably comprises two (preferably independent) engaging means and two releasing means, one releasing means releasing each engaging means, the method comprising engaging the releasing means from two opposite outer surfaces of the dispenser.

20 15 In one embodiment, the engaging means comprises at least one leaf spring having two ends, one end engaging the dispenser and the other end engaging the holding means when received in the dispenser, the spring being positioned so that the one end is positioned closer to the opening than the other end. Then, the at least one leaf spring could have a longitudinal direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot (normally a longitudinal axis of the slot).

25 20 Also, the releasing means, during the releasing step, preferably removes the engagement between the leaf spring and the holding means, and the releasing means may, during the releasing step, move the other end of the leaf spring in a direction away from the holding means. This may be obtained when the releasing means is, during the releasing step, translated in a longitudinal direction of the spring (or the holding means); the releasing means engaging the spring and maintaining at least part of the spring away from the holding means.

30 25

In another embodiment the engaging means comprises an element rotatable around a predetermined axis and having a part adapted to exert the friction force, when the element is rotated into the first position, the releasing means rotating the element between the first position and the second position where a lower friction (such as no friction) is exerted by the element.

Then, the engaging means could bias the element toward the holding means, when the element is in the first position. The method could also comprise the step of one or more edge parts of the element engaging the holding means, when the element is in the first position, the predetermined axis could be at least substantially perpendicular to a direction of movement of the holding means during reception in the slot, and the axis of rotation could be positioned closer to the opening than the part adapted to exert the friction.

An eighth aspect of the invention relates to a method of operating a dispenser for holding a means for dispensing units,

- the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
- the dispenser comprising:
 - o an opening for receiving the holding means,
 - o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
 - o means for engaging the holding means, when the holding means is received by the dispenser, and
 - o means for releasing the engaging means,

wherein:

- the engaging means comprises two end parts, the engaging means engaging the dispenser at one end part and the holding means at another end part, the other end part being moved between a first position, in which it does not engage the holding means to any substantial degree, and a second position, in which it engages the holding means, the one end being positioned closer to the opening than the second end.

Preferably, an element of the engaging means is rotated around a predetermined axis at the one end part and exerts a friction force, when the engaging means is rotated into the second position, the releasing means rotating the element to a first position, where a lower

5 friction (such as no friction) is exerted by the element. Then, the predetermined axis is preferably at least perpendicular to a direction of movement of the holding means during reception in the dispenser.

10 The method could further comprise the step of biasing the element toward the holding means, when the engaging means is in the first position.

In addition, the method could comprise the step of one or more edge parts of the engaging means engaging the holding means, when the element is in the first position.

15 In one embodiment, the engaging means comprises at least one leaf spring. Then, the at least one leaf spring could have a longitudinal direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot (normally a longitudinal axis of the slot). Normally, the releasing means would remove the engagement between the leaf 20 spring and the holding means. Then, the releasing means preferably move the other end of the leaf spring in a direction away from the holding means. This may be obtained when the releasing means is translated in a longitudinal direction of the spring (or the holding means), the releasing means having means for engaging the spring and maintaining at least part of the spring away from the holding means.

25

In general, the method preferably comprises the step of the dispenser maintaining the holding means in a bent shape when received in the slot.

30 Also, preferably, the dispenser exerts a force to two opposite side portions or edge portions of the holding means.

In addition, the method may further comprise the step of a user accessing the holding means through an elongated opening or slot extending in a longitudinal direction of the holding means (such as to slide the holding means in/out).

5 A ninth aspect of the invention relates to a method of operating a dispenser for holding a means for dispensing units,

- the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
- 10 - the dispenser comprising:
 - o an opening for receiving the holding means,
 - o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
 - o means for engaging the holding means, when the holding means is received by the dispenser, and
 - o means for releasing the engaging means,

the method comprising the steps of:

- maintaining the first surface at or in a predetermined plane, when the holding means is received by the dispenser,
- 20 - abutting an edge portion, of the holding means, facing the opening, when the holding means is received in the opening, the abutting means having an abutting surface facing the edge portion of the holding means, extending at an angle to the predetermined plane, and a predetermined distance away from the plane, and
- 25 - a releasing step comprising displacing the edge portion of the holding means at least the predetermined distance away from the plane.

The maintaining step may comprise biasing the holding means against one or more surface parts of the dispenser, the surface part(s) defining the predetermined plane. Then, the 30 abutting edge portion could extend the predetermined distance away from the surface part(s).

Also, the displacing step preferably comprises displacing the edge portion at least the predetermined distance away from the surface part(s).

In addition, preferably, the displacing means are positioned in a part of the dispenser also

5 defining the surface part(s), the displacing step comprising displacing the edge portion in a direction at an angle to the predetermined plane. Then, the displacing step preferably comprises a user providing the displacement from an outer surface part of the dispenser. This may be obtained when the displacement is provided by the user deforming or displacing the edge portion of the holding means by deforming or displacing a resilient or

10 deformable element provided in the part of the dispenser defining the surface part(s).

In one embodiment, the predetermined surface part of the holding means faces the surface part(s).

15 In that or another embodiment, the edge portion of the holding means is an outer edge portion of the holding means.

Also, the engaging means could be displaced in a direction at least substantially along the predetermined plane so that a part of the holding means adjacent to the edge portion bends

20 away from the predetermined plane due to the biasing.

As mentioned above, preferably, the predetermined plane has a bent shape.

A twelfth aspect of the invention relates to a method of operating a dispenser for holding a

25 means for dispensing units,

30

- the holding means comprising a plurality of cavities each holding one or more units to be dispensed, each cavity being accessible from a predetermined surface of the holding means, the holding means having at least one portion protruding from the predetermined surface or a surface parallel there to,
- the dispenser comprising:
 - o an opening for receiving the holding means,

- o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
- o means for engaging the holding means, when the holding means is received by the dispenser, and
- 5 o means for releasing the engaging means,

the method comprising the step of the engaging means abutting at least one protruding portion at a part thereof facing the opening.

- 10 In one embodiment, the engaging means comprises at least one leaf spring having two ends, one end engaging the dispenser and the other end being positioned so as to engage the holding means when received in the dispenser, the spring being positioned so that the one end is positioned closer to the opening than the other end. Then, the at least one leaf spring may have a longitudinal direction between the one end and the other end, the
- 15 longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot (normally a longitudinal axis of the slot).

Also, the releasing means preferably removes the engagement between the leaf spring and the holding means, such as when the releasing means moves the other end of the leaf

- 20 spring in a direction away from the holding means. This may be obtained when the releasing means is translated in a longitudinal direction of the spring (or the holding means); the releasing means engaging the spring and maintaining at least part of the spring away from the holding means.

- 25 In another embodiment, the engaging means comprises an element, which is rotated around a predetermined axis and having a part engaging the holding means, when the element is rotated into a first position, the releasing means rotating the element to a second position where at least substantially no engagement takes place between the engaging means and the holding means.

- 30 Preferably, in that embodiment, the engaging means further biases the element toward the holding means, when the element is in the first position.

Also, a step may be added of one or more edge parts of the element engaging the holding means, when the element is in the first position.

5 The predetermined axis is preferably at least substantially perpendicular to a direction of movement of the holding means during reception in the slot, and the axis of rotation is suitably positioned closer to the opening than the part adapted to exert the friction.

10 The method preferably further comprises the step of a user accessing the holding means through an elongated opening or slot extending in a longitudinal direction of the holding means, when it is received in the slot.

As mentioned above, the dispenser preferably maintains the holding means in a bent shape when received in the slot.

15 Finally, the method may comprise the step of biasing a biasing means during insertion of the holding means in the slot, an outputting step comprising the step of the biasing means pushing, upon operation of the releasing means, the holding means in a direction out of the slot.

20 Also, the releasing step may comprise pushing one or more push buttons toward or into the dispenser or rotating one or more rotatable members in order to release the engaging or biasing means.

25 In the following, preferred embodiments, described in relation to dispensers for medication in blister cards, are described with reference to the drawing, wherein:

- Fig. 1 illustrates a first embodiment of the invention,
- Fig. 2 is a cut-through part of the embodiment of Fig. 1,
- Fig. 3 illustrates a second embodiment of the invention,
- 30 Fig. 4 is a cut-through part of the embodiment of Fig. 3,
- Fig. 5 is a cut-through part of a third embodiment,
- Fig. 6 illustrates the upper side of the third embodiment,
- Fig. 7 a-c illustrates a fourth embodiment according to the invention,

Figs. 8-10 illustrate other manners of releasing the holding means,
Figs. 11-13 illustrate other manner of engaging and releasing the holding means,
Fig. 14 illustrates another manner of releasing a holding means, and
Fig. 15 illustrates a manner of obtaining easier access to a released holding means.

5

Fig. 1 illustrates a dispenser according to the invention. This dispenser has an opening 10 adapted to receive a blister card (not illustrated on this figure) and a slot 12 adapted to receive and hold the sides of the blister card.

- 10 When fully inserted, the blister card is received in the slot 12, where the edges of the blister card are guided by guides 14 which also define the shape which the blister card obtains when held by the dispenser. Finally, an outer and innermost edge abuts an abutting member 16 and a bottom (not illustrated) part of the slot 12. This biasing, together with the shape of the slot 12, preferably gives the blister card a curved shape which acts to bias the
- 15 blister card against a lower part 18 of the dispenser.

20

- 20 An upper part 20 of the dispenser comprises an opening 20' through which a user may engage the blister card during sliding into and out of the slot 12. This upper part 20 and the opening 20' are designed so that they cover those parts of the metallic sheet of the blister card through which access is normally gained to the medication in the blister card. This covering needs not be a total covering, but a covering sufficient to ensure that either the metallic sheet is not broken or the medication is not removable from the blisters.
- 25

30

When fully received, the blister card is present in the slot 12, and the outer most edge part engages and biases against the inner surface 16' of the member 16.

Thus, a child is not able to remove the blister card, unless it is able to have the edge part of the blister card travel over the member 16. The biasing of the blister card, the size of the opening 10, the height, H, of the surface 16' over the normal, biased position of the blister

card end, will all determine the child resistance or how easy removal of the blister card will be.

In order to be able to remove the blister card, a displacing element 30 is provided which is

5 able to be displaced in a direction toward the blister card and to displace the outermost end of the blister card over the element 16, and thereby release the blister card. The element 30 is provided as an elongated part of the upper part 18, which is made of a relatively stiff plastic material. This part, 30' is embedded in a softer material 32 which makes it possible to plastically deform the element 30' and to have that displacement return to its original

10 state thereafter. This two-component moulding is simple, cheap, and the design of the dispenser may be such that the operation of the displacing means is not visible to or obvious to children.

Figs. 3 and 4 illustrate another manner of releasing a blister card which is held by a

15 dispenser in which it is held by the guides (preferably in the bent shape) 14, and which is biased between the bottom of the slot 12 and the element 16.

In this embodiment, the release is obtained by moving the element 16 toward the bottom of the slot 12, whereby the blister card is further compressed and will attempt to bulge out.

20 The guides 14 will make the blister card maintain its shape along the length of the dispenser but a predetermine length at the opening 10, where the blister card is allowed to bulge out due to the further compression. This bulging out (which is here only possible to one side) will eventually make the blister card end move over the element 16, whereby the blister card is released.

25

In this embodiment, the element 16 is mounted so as to be displaceable in the longitudinal direction of the dispenser. The element 16 is biased away from the centre of the dispenser by one or more torsion springs 34, but is movable, by exerting a predetermined force, toward the centre of the dispenser in order to release the blister card.

30

Figs. 5 and 6 illustrate a different embodiment, which, again, comprises the opening 10, the slot 12, the guides 14 (but which are not illustrated), the upper and lower parts 18 and 20 as well as the opening 20'.

In this embodiment, the engagement of the blister card is obtained by two leaf springs 50, one positioned at each longitudinal side of the blister card – but where only one is illustrated.

5

These leaf springs are attached, at one end, 50', to the upper part 18 of the dispenser by e.g. weldings 52.

The leaf springs are shaped so as to bias the other end, 50'', toward the blister card.

- 10 Removal of the blister card is in the right direction of the Figures, whereby it is seen that the leaf springs 50 will tighten the engagement even further and block the movement of the blister card. Insertion, however, of the blister card meets no substantial friction with the leaf springs 50.
- 15 Release of the springs 50 is obtained by sliding a sliding member 54 in a direction from the end 50' toward the end 50''. The member 54 engages the spring 50, at the part 54', and forces it toward the part 18, which means that the spring 50 is moved away from the blister card, whereby the engagement between the blister card and the spring 50 is released.
- 20 The member 54 is biased toward a right-most (in the figure) position so as to only release the blister card when a force is applied to the member 54.

- 25 When two springs 50 are provided, two releasing movements are required in order to remove the card. The more independent releasing actions that are required, the "safer" or more child resistant the dispenser.

- 30 Another feature of this – as well as of other of the embodiments, is the sliding releasing means. The sliding in the direction of the plane of the blister card (or at least at the longitudinal position at which the sliding means are positioned, when the blister card is not straight) is more difficult for children to see or deduce. This is especially true, when two such operations are required in order to release the blister card.

Fig. 7 illustrates another manner of providing the displaceable member 30 in the embodiment of Fig. 1. This manner comprises a displaceable member 60 is not "embedded" in a softer plastic material but is simply cut out or moulded with the remaining part of the upper part 18.

5

Fig. 8 is a further alternative, where the displaceable member 62 is made displaceable by providing two elongate slots 64, which make the member 62 more easily displaced toward the blister card.

10 In Fig. 9, the softer material 32 in Fig. 1 is replaced by a part 66 which is thinner than the surrounding parts of the upper part 18. Again, the displaceable element, 64, is displaceable in order to have the blister card end move over the part 16.

15 Fig. 10 illustrates yet another manner, which may be found to be efficient and cheap but less child resistant. An opening or hole 68 is provided for inserting a finger or a tool (pencil or the like) for displacing the blister card over the member 16.

Fig. 11 illustrates a manner alternative to that of Fig. 3 for providing an engagement and a release thereof using a leaf spring.

20

In Fig. 11, the leaf spring 70 forms part of a deformable element having two studs 72 which are adapted to engage the dispenser or the blister card. When pushing the element at the arrow, a deformation will occur due to the abutment of the studs 72, whereby the leaf spring will be lifted from the blister card and the blister card released. The user may 25 engage the element via push buttons at the outer side of the dispenser – or directly via e.g. a hole – or the element may be integrated in the dispenser.

Fig. 12 illustrates an embodiment where the leaf spring 50 is replaced by a rotatable element 70 rotatably attached to the part 18 and rotatable around an axis 70'.

30

The element 70 is biased against the blister card by a spring 72, and is adapted to be lifted there from by a slidable element 74 which is translated in the direction of the arrow, whereby the element 70 will disengage the blister card.

The direction of insertion of the blister card is in the direction from right to left, whereby it is seen that unauthorized removal of the blister card will make the element 70 engage even more with the blister card.

5

The element 70 is illustrated with a number of edges or peaks 70" which are adapted to provide a sufficient friction with the blister card.

10 In Fig. 13, an element 80 with an operation similar to that of Fig. 12 is seen (rotatably mounted and rotatable around an axis 80'). However, in this embodiment, the element 80 abuts and engages a blister 82' of the blister card 84. Again, a slideable element 82 releases the engagement. Thus, lower requirements as to the friction and other engagements is obtained in that removal of this blister card will require deformation of the blister – and then some.

15

Fig. 14 illustrates an embodiment with a functionality close to that of Fig. 3, but where the blister card is deformed around the longitudinal axis by two push buttons 84. This deformation will displace the central portion of the blister card, whereby disengagement may be obtained with any of the above engaging means.

20

Fig. 15, finally, illustrates that at the bottom of the slot 12 of the dispenser, a spring or other resilient means may be provided. This spring/means 90 is biased when the blister card 92 is inserted and will act to push the card outwardly, when the engaging means are released. This has the advantage that when two fingers or two hands are required for 25 releasing the holding means, another finger/hand is not required to bring the holding means to a position where it may be removed without further disengagement or where it may more easily be accessed/handled by the user.

30 In the foregoing, the invention has been described with reference to blister cards. It is, however, obvious that all other types of holding means may be used, due to the fact that the engagements proposed are adapted to a large variations of holding means, stiff as well as bendable, straight as well as with extending parts, adapted to friction engagement or not, etc.

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CLAIMS

1. A dispenser for holding a means for dispensing units,
 - 5 - the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
 - the dispenser comprising:
 - o a slot having an opening for receiving the holding means,
 - o means for preventing access to the units from the predetermined surface, when the holding means is received in the slot,
 - o means for engaging the holding means, when the holding means is received in the slot, and
 - o means for releasing the engaging means,
- 15 wherein the engaging means comprise releasable biasing means for exerting a friction force to a surface of the holding means in order to prevent or make difficult removal thereof from the dispenser.
2. A dispenser according to claim 1, wherein the releasable biasing means is adapted to exert a first friction during movement of the holding means into the dispenser and a second, higher, friction during removal of the holding means from the dispenser, when the releasing means is not operated.
- 25 3. A dispenser according to claim 2, wherein the releasing means is adapted to have the biasing means exert a third friction during removal of the holding means from the dispenser, when the releasing means is operated, the third friction being lower than the second friction.
- 30 4. A dispenser according to any of the preceding claims, wherein the releasable biasing means comprises at least one leaf spring having two ends, one end engaging the dispenser and the other end being positioned so as to engage the holding means when received in the dispenser, the spring being positioned so that the one end is positioned closer to the opening than the other end.

5. A dispenser according to claim 4, the at least one leaf spring having a longitudinal direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot.
6. A dispenser according to any of claims 4 or 5, wherein the releasing means is adapted to remove the engagement between the leaf spring and the holding means.
- 10 7. A dispenser according to claim 6, wherein the releasing means are adapted to move the other end of the leaf spring in a direction away from the holding means.
- 15 8. A dispenser according to claim 7, wherein the releasing means is adapted to be translated in a longitudinal direction of the spring, the releasing means having means for engaging the spring and maintaining at least part of the spring away from the holding means.
9. A dispenser according to any of the preceding claims, wherein the releasable biasing means comprises an element rotatable around a predetermined axis and having a part adapted to exert the friction force, when the element is rotated into a first position, the releasing means being adapted to rotate the element to a second position where a lower friction is exerted by the element.
- 20 10. A dispenser according to claim 9, wherein the releasable biasing means further comprises means for biasing the element toward the holding means, when the element is in the first position.
11. A dispenser according to claim 9 or 10, wherein the element comprises one or more edge parts adapted to engage the holding means, when the element is in the first position.
- 30 12. A dispenser according to any of claims 9-11, wherein the predetermined axis is at least substantially perpendicular to a direction of movement of the holding means during reception in the slot.

13. A dispenser according to claim 12, wherein the axis of rotation is positioned closer to the opening than the part adapted to exert the friction.

5 14. A dispenser for holding a means for dispensing units,

- the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
- the dispenser comprising:
 - 10 o an opening for receiving the holding means and
 - o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
 - o means for engaging the holding means, when the holding means is received by the dispenser, and
 - 15 o means for releasing the engaging means,

wherein:

- the engaging means comprises two end parts, the engaging means engaging the dispenser at one end part and the holding means at another end part, the other end 20 part being movable between a first position, in which it does not engage the holding means to any substantial degree, and a second position, in which it engages the holding means,
- the releasing means is translatable in a direction at least substantially parallel to the predetermined surface of the holding means, translation in the direction moving the 25 engaging means between the first and second positions.

15. A dispenser according to claim 14, wherein the releasing means are adapted to be engaged by a user at one or more outer surface(s) of the dispenser.

30 16. A dispenser according to claim 15, the releasing means comprising two engaging means and two releasing means, one releasing means releasing one engaging means, the releasing means being engageable from two opposite outer surfaces of the dispenser.

17. A dispenser according to any of claims 14-16, wherein the engaging means comprises at least one leaf spring having two ends, one end engaging the dispenser and the other end being positioned so as to engage the holding, means when received in the dispenser, the spring being positioned so that the one end is positioned closer to the opening than the
5 other end.
18. A dispenser according to claim 17, the at least one leaf spring having a longitudinal direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in
10 the slot.
19. A dispenser according to any of claims 17 or 18, wherein the releasing means is adapted to remove the engagement between the leaf spring and the holding means.
- 15 20. A dispenser according to claim 19, wherein the releasing means are adapted to move the other end of the leaf spring in a direction away from the holding means.
21. A dispenser according to claim 20, wherein the releasing means is adapted to be translated in a longitudinal direction of the spring, the releasing means having means for
20 engaging the spring and maintaining at least part of the spring away from the holding means.
22. A dispenser according to any of claims 14-21, wherein the engaging means comprises an element rotatable around a predetermined axis and having a part adapted to engage the
25 holding means, when the element is rotated into the first position, the releasing means being adapted to rotate the element to the second position where a lower engagement is exerted by the element.
23. A dispenser according to claim 22, wherein the engaging means further comprises
30 means for biasing the element toward the holding means, when the element is in the first position.

24. A dispenser according to claim 22 or 23, wherein the element comprises one or more edge parts adapted to engage the holding means, when the element is in the first position.

25. A dispenser according to any of claims 22-24, wherein the predetermined axis is at 5 least substantially perpendicular to a direction of movement of the holding means during reception in the slot.

26. A dispenser according to claim 25, wherein the axis of rotation is positioned closer to the opening than the part adapted to exert the friction.

10

27. A dispenser for holding a means for dispensing units,

- the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
- 15 - the dispenser comprising:
 - o an opening for receiving the holding means,
 - o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
 - o means for engaging the holding means, when the holding means is received 20 by the dispenser, and
 - o means for releasing the engaging means,

wherein:

- the engaging means comprises two end parts, the engaging means engaging the 25 dispenser at one end part and the holding means at another end part, the other end part being movable between a first position, in which it does not engage the holding means to any substantial degree, and a second position, in which it engages the holding means, the one end being positioned closer to the opening than the second end.

30

28. A dispenser according to claim 27, wherein the engaging means is rotatable around a predetermined axis at the one end part and comprises means for exerting a friction force,

when the engaging is rotated into the second position, the releasing means being adapted to rotate the element to a first position, where a lower friction is exerted by the element.

29. A dispenser according to claim 28, wherein the predetermined axis is at least 5 perpendicular to a direction of movement of the holding means during reception in the dispenser.
30. A dispenser according to any of claims 27-29, wherein the engaging means further comprises means for biasing the element toward the holding means, when the engaging 10 means is in the first position.
31. A dispenser according to any of claims 27-30, wherein the engaging means comprises one or more edge parts adapted to engage the holding means, when the element is in the first position.
- 15
32. A dispenser according to any of claims 27-31, wherein the engaging means comprises at least one leaf spring.
33. A dispenser according to claim 32, the at least one leaf spring having a longitudinal 20 direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot.
34. A dispenser according to any of claims 32 or 33, wherein the releasing means is 25 adapted to remove the engagement between the leaf spring and the holding means.
35. A dispenser according to claim 34, wherein the releasing means is adapted to move the other end of the leaf spring in a direction away from the holding means.
- 30
36. A dispenser according to claim 35, wherein the releasing means is adapted to be translated in a longitudinal direction of the spring, the releasing means having means for engaging the spring and maintaining at least part of the spring away from the holding means.

37. A dispenser according to any of the preceding claims, wherein the dispenser is adapted to maintain the holding means in a bent shape when received in the slot.

5 38. A dispenser according to any of the preceding claims, wherein the dispenser is adapted to exert a force to two opposite side portions or edge portions of the holding means.

39. A dispenser according to any of the preceding claims, wherein the dispenser comprises an elongated opening or slot extending in a longitudinal direction of the holding means,

10 when it is received in the slot, the opening or slot being adapted to have a user access the holding means through the slot.

40. A dispenser for holding a means for dispensing units,

15 - the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,

- the dispenser comprising:

- o an opening for receiving the holding means,
- o means for preventing access to the units from the predetermined surface,

20 when the holding means is received by the dispenser,

- o means for engaging the holding means, when the holding means is received by the dispenser, and
- o means for releasing the engaging means,

25 wherein:

- the dispenser further comprises means for maintaining the first surface at or in a predetermined plane, when the holding means is received by the dispenser,
- the engaging means comprises means for abutting an edge portion, of the holding means, facing the opening, when the holding means is received in the opening, the

30 abutting means having an abutting surface facing the edge portion of the holding means, extending at an angle to the predetermined plane, and a predetermined distance away from the plane, and

- the releasing means comprises means for displacing the edge portion of the holding means at least the predetermined distance away from the plane.

41. A dispenser according to claim 40, wherein the maintaining means is adapted to bias
5 the holding means against one or more surface parts of the dispenser, the surface part(s)
defining the predetermined plane.

42. A dispenser according to claim 41, wherein the abutting edge portion extends the
predetermined distance away from the surface part(s).

10 43. A dispenser according to claim 41 or 42, wherein the displacing means is adapted to
displace the edge portion at least the predetermined distance away from the surface part(s).

15 44. A dispenser according to claim 41, 42, or 43, wherein the displacing means is
positioned in a part of the dispenser also defining the surface part(s), the displacing means
being adapted to displace the edge portion in a direction at an angle to the predetermined
plane.

20 45. A dispenser according to claim 44, wherein the displacing means is engageable by a
user from one or more outer surface part(s) of the dispenser.

25 46. A dispenser according to claim 45, the dispenser comprising, at the outer surface part
and in the part(s) of the dispenser defining the surface part(s), a resilient or deformable
element adapted to be deformed or displaced by the user so as to displace the edge portion
of the holding means.

47. A dispenser according to any of claims 41-46, wherein the predetermined surface
part(s) of the holding means is/are adapted to face the surface part(s).

30 48. A dispenser according to any of claims 41-47, wherein the edge portion of the holding
means is an outer edge portion of the holding means.

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49. A dispenser according to any of claims 41-48, wherein the engaging means is displaceable in a direction at least substantially along the predetermined plane, the dispenser comprising means for allowing a part of the holding means adjacent to the edge portion to bend away from the predetermined plane due to the biasing.

5

50. A dispenser according to any of claims 40-49, wherein the predetermined plane has a bent shape.

51. A dispenser for holding a means for dispensing units,

10

- the holding means comprising a plurality of cavities each holding one or more units to be dispensed, each cavity being accessible from a predetermined surface of the holding means, the holding means having at least one portion protruding from the predetermined surface or a surface parallel there to,

15

- the dispenser comprising:

- o an opening for receiving the holding means,
- o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
- o means for engaging the holding means, when the holding means is received by the dispenser, and
- o means for releasing the engaging means,

wherein:

- the engaging means comprises means for abutting at least one protruding portion at a part thereof facing the opening.

25

52. A dispenser according to claim 51, wherein the engaging means comprises at least one leaf spring having two ends, one end engaging the dispenser and the other end being positioned so as to engage the holding means when received in the dispenser, the spring being positioned so that the one end is positioned closer to the opening than the other end.

30

53. A dispenser according to claim 52, the at least one leaf spring having a longitudinal direction between the one end and the other end, the longitudinal direction being at least

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substantially parallel to a direction of movement of the holding means during reception in the slot.

54. A dispenser according to any of claims 52 or 53, wherein the releasing means is
5 adapted to remove the engagement between the leaf spring and the holding means.

55. A dispenser according to claim 54, wherein the releasing means are adapted to move the other end of the leaf spring in a direction away from the holding means.

10 56. A dispenser according to claim 55, wherein the releasing means is adapted to be translated in a longitudinal direction of the spring, the releasing means having means for engaging the spring and maintaining at least part of the spring away from the holding means.

15 57. A dispenser according to any of claims 51-56, wherein the engaging means comprises an element rotatable around a predetermined axis and having a part adapted to engage the holding means, when the element is rotated into a first position, the releasing means being adapted to rotate the element to a second position where at least substantially no engagement takes place between the engaging means and the holding means.

20 58. A dispenser according to claim 57, wherein the engaging means further comprises means for biasing the element toward the holding means, when the element is in the first position.

25 59. A dispenser according to claim 57 or 58, wherein the element comprises one or more edge parts adapted to engage the holding means, when the element is in the first position.

30 60. A dispenser according to any of claims 57-59, wherein the predetermined axis is at least substantially perpendicular to a direction of movement of the holding means during reception in the slot.

61. A dispenser according to claim 60, wherein the axis of rotation is positioned closer to the opening than the part adapted to exert the friction.

62. A dispenser according to any of claims 51-61, wherein the dispenser comprises an elongated opening or slot extending in a longitudinal direction of the holding means, when it is received in the slot, the opening or slot being adapted to have a user access the holding means through the slot.

5

63. A dispenser according to any of claims 51-62, wherein the dispenser is adapted to maintain the holding means in a bent shape when received in the slot.

10 64. A method of operating a dispenser for holding a means for dispensing units,

- the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
- the dispenser comprising:
 - o a slot having an opening for receiving the holding means,
 - o means for preventing access to the units from the predetermined surface, when the holding means is received in the slot,
 - o means for engaging the holding means, when the holding means is received in the slot, and
 - o means for releasing the engaging means,

15

20

the method comprising the step of having a releasable biasing means of the engaging means exert a friction force to a surface of the holding means in order to prevent or make difficult removal thereof from the dispenser.

25

65. A method according to claim 64, wherein the releasable biasing means exerts a first friction during movement of the holding means into the dispenser and a second, higher, friction during removal of the holding means from the dispenser, when the releasing means is not operated.

30

66. A method according to claim 65, wherein the biasing means exerts a third friction during removal of the holding means from the dispenser when the releasing means is operated, the third friction being lower than the second friction.

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67. A method according to any of claims 64-66, wherein the releasable biasing means comprises at least one leaf spring having two ends, one end engaging the dispenser and the other end engaging the holding means when received in the dispenser, the spring being positioned so that the one end is positioned closer to the opening than the other end.

5

68. A method according to claim 67, the at least one leaf spring having a longitudinal direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot.

10

69. A method according to any of claims 67 or 68, further comprising a releasing step wherein the releasing means removes the engagement between the leaf spring and the holding means.

15

70. A method according to claim 69, wherein the releasing means move the other end of the leaf spring in a direction away from the holding means.

71. A method according to claim 70, wherein the releasing means are translated in a longitudinal direction of the spring, the releasing means having means for engaging the spring and maintaining at least part of the spring away from the holding means.

20

72. A method according to any of claims 64-71, wherein the releasable biasing means are rotated around a predetermined axis and having a part exerting the friction force, when the element is rotated into a first position, the releasing means rotating the element to a second position where a lower friction is exerted by the element.

25

73. A method according to claim 72, wherein the releasable biasing means further comprises means for biasing the element toward the holding means, when the element is in the first position.

30

74. A method according to claim 72 or 73, wherein the engaging step comprises having one or more edge parts of the releasable biasing means engage the holding means, when the element is in the first position.

5 75. A method according to any of claims 72-74, wherein the rotation is performed around a predetermined axis which is at least substantially perpendicular to a direction of movement of the holding means during reception in the slot.

10 76. A method according to claim 75, wherein the axis of rotation is positioned closer to the opening than the part adapted to exert the friction.

77. A method of operating a dispenser for holding a means for dispensing units,

15

- the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
- the dispenser comprising:
 - o an opening for receiving the holding means,
 - o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
 - o means for engaging the holding means, when the holding means is received by the dispenser, and
 - o means for releasing the engaging means,

20

wherein:

25

- the engaging means comprises two end parts, the engaging means engaging the dispenser at one end part and the holding means at another end part, the other end part being movable between a first position, in which it does not engage the holding means to any substantial degree, and a second position, in which it engages the holding means

30

the method comprising a releasing step wherein the releasing means is translated in a direction at least substantially parallel to the predetermined surface of the holding means, thereby moving the engaging means between the first and second positions.

78. A method according to claim 77, wherein the releasing means are engaged by a user at an outer surface of the dispenser.

5 79. A method according to claim 78, the releasing means comprising two engaging means and two releasing means, one releasing means releasing each engaging means, the method comprising engaging the releasing means from two opposite outer surfaces of the dispenser.

10 80. A method according to any of claims 77-79, wherein the engaging means comprises at least one leaf spring having two ends, one end engaging the dispenser and the other end engaging the holding means when received in the dispenser, the spring being positioned so that the one end is positioned closer to the opening than the other end.

15 81. A method according to claim 80, the at least one leaf spring having a longitudinal direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot.

20 82. A method according to any of claims 80 or 81, wherein the releasing means, during the releasing step, removes the engagement between the leaf spring and the holding means.

83. A method according to claim 82, wherein the releasing means, during the releasing step, moves the other end of the leaf spring in a direction away from the holding means.

25 84. A method according to claim 83, wherein the releasing means is, during the releasing step, translated in a longitudinal direction of the spring, the releasing means engaging the spring and maintaining at least part of the spring away from the holding means.

30 85. A method according to any of claims 77-84, wherein the engaging means comprises an element rotatable around a predetermined axis and having a part adapted to exert the friction force, when the element is rotated into the first position, the releasing means

rotating the element between the first position and the second position where a lower friction is exerted by the element.

86. A method according to claim 85, wherein the engaging means bias the element toward 5 the holding means, when the element is in the first position.

87. A method according to claim 85 or 86, further comprising the step of one or more edge parts of the element engaging the holding means, when the element is in the first position.

10 88. A method according to any of claims 85-87, wherein the predetermined axis is at least substantially perpendicular to a direction of movement of the holding means during reception in the slot.

15 89. A method according to claim 88, wherein the axis of rotation is positioned closer to the opening than the part adapted to exert the friction.

90. A method of operating a dispenser for holding a means for dispensing units,

- the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
- the dispenser comprising:
 - o an opening for receiving the holding means,
 - o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
 - o means for engaging the holding means, when the holding means is received by the dispenser, and
 - o means for releasing the engaging means,

wherein:

30

- the engaging means comprises two end parts, the engaging means engaging the dispenser at one end part and the holding means at another end part, the other end part being moved between a first position, in which it does not engage the holding means to any substantial degree, and a second position, in which it engages the

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holding means, the one end being positioned closer to the opening than the second end.

91. A method according to claim 90, wherein an element of the engaging means is rotated around a predetermined axis at the one end part and exerts a friction force, when the engaging means is rotated into the second position, the releasing means rotating the element to a first position, where a lower friction is exerted by the element.
92. A method according to claim 91, wherein the predetermined axis is at least perpendicular to a direction of movement of the holding means during reception in the dispenser.
93. A method according to any of claims 90-92, further comprising the step of biasing the element toward the holding means, when the engaging means is in the first position.
94. A method according to any of claims 90-94, further comprising the step of one or more edge parts of the engaging means engaging the holding means, when the element is in the first position.
95. A method according to any of claims 90-94, wherein the engaging means comprises at least one leaf spring.
96. A method according to claim 95, the at least one leaf spring having a longitudinal direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot.
97. A method according to any of claims 95 or 96, wherein the releasing means removes the engagement between the leaf spring and the holding means.
98. A method according to claim 97, wherein the releasing means move the other end of the leaf spring in a direction away from the holding means.

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99. A method according to claim 98, wherein the releasing means is translated in a longitudinal direction of the spring, the releasing means having means for engaging the spring and maintaining at least part of the spring away from the holding means (translated part).

5

100. A method according to any of claims 64-99, wherein the dispenser maintains the holding means in a bent shape when received in the slot.

10

101. A method according to any of claims 64-100, wherein the dispenser exerts a force to two opposite side portions or edge portions of the holding means.

102. A method according to any of claims 64-101, further comprising the step of a user accessing the holding means through an elongated opening or slot extending in a longitudinal direction of the holding means.

15

103. A method of operating a dispenser for holding a means for dispensing units,

- the holding means comprising a plurality of units to be dispensed from a predetermined surface thereof,
- the dispenser comprising:
 - o an opening for receiving the holding means,
 - o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
 - o means for engaging the holding means, when the holding means is received by the dispenser, and
 - o means for releasing the engaging means,

25

the method comprising the steps of:

- maintaining the first surface at or in a predetermined plane, when the holding means is received by the dispenser,
- abutting an edge portion, of the holding means, facing the opening, when the holding means is received in the opening, the abutting means having an abutting

surface facing the edge portion of the holding means, extending at an angle to the predetermined plane, and a predetermined distance away from the plane, and

- a releasing step comprising displacing the edge portion of the holding means at least the predetermined distance away from the plane.

5

104. A method according to claim 103, wherein the maintaining step comprises biasing the holding means against one or more surface parts of the dispenser, the surface part(s) defining the predetermined plane.

10 105. A method according to claim 104, wherein the abutting edge portion extends the predetermined distance away from the surface part(s).

15 106. A method according to claim 104 or 105, wherein the displacing step comprises displacing the edge portion at least the predetermined distance away from the surface part(s).

20 107. A method according to claim 104, 105, or 106, wherein the displacing means are positioned in a part of the dispenser also defining the surface part(s), the displacing step comprising displacing the edge portion in a direction at an angle to the predetermined plane.

108. A method according to claim 107, wherein the displacing step comprises a user providing the displacement from an outer surface part of the dispenser.

25 109. A method according to claim 108, wherein the displacement is provided by the user deforming or displacing the edge portion of the holding means by deforming or displacing a resilient or deformable element provided in the part of the dispenser defining the surface part(s).

30 110. A method according to any of claims 104-109, wherein the predetermined surface part of the holding means faces the surface part(s).

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111. A method according to any of claims 104-110, wherein the edge portion of the holding means is an outer edge portion of the holding means.

112. A method according to any of claims 104-111, wherein the engaging means are 5 displaced in a direction at least substantially along the predetermined plane so that a part of the holding means adjacent to the edge portion bends away from the predetermined plane due to the biasing.

113. A method according to any of claims 103-112, wherein the predetermined plane has a 10 bent shape.

114. A method of operating a dispenser for holding a means for dispensing units,

15 - the holding means comprising a plurality of cavities each holding one or more units to be dispensed, each cavity being accessible from a predetermined surface of the holding means, the holding means having at least one portion protruding from the predetermined surface or a surface parallel there to,

- the dispenser comprising:

20 o an opening for receiving the holding means,
 o means for preventing access to the units from the predetermined surface, when the holding means is received by the dispenser,
 o means for engaging the holding means, when the holding means is received by the dispenser, and
 o means for releasing the engaging means,

25 the method comprising the step of the engaging means abutting at least one protruding portion at a part thereof facing the opening.

115. A method according to claim 114, wherein the engaging means comprises at least one 30 leaf spring having two ends, one end engaging the dispenser and the other end being positioned so as to engage the holding means when received in the dispenser, the spring being positioned so that the one end is positioned closer to the opening than the other end.

116. A method according to claim 115, the at least one leaf spring having a longitudinal direction between the one end and the other end, the longitudinal direction being at least substantially parallel to a direction of movement of the holding means during reception in the slot.

5

117. A method according to any of claims 115 or 116, wherein the releasing means removes the engagement between the leaf spring and the holding means.

10 118. A method according to claim 117, wherein the releasing means moves the other end of the leaf spring in a direction away from the holding means.

119. A method according to claim 118, wherein the releasing means is translated in a longitudinal direction of the spring, the releasing means engaging the spring and maintaining at least part of the spring away from the holding means.

15

20 120. A method according to any of claims 114-119, wherein the engaging means comprises an element, which is rotated around a predetermined axis and having a part engaging the holding means, when the element is rotated into a first position, the releasing means rotating the element to a second position where at least substantially no engagement takes place between the engaging means and the holding means.

121. A method according to claim 120, wherein the engaging means further biases the element toward the holding means, when the element is in the first position.

25 122. A method according to claim 120 or 121, further comprising the step of one or more edge parts of the element engaging the holding means, when the element is in the first position.

30 123. A method according to any of claims 120-122, wherein the predetermined axis is at least substantially perpendicular to a direction of movement of the holding means during reception in the slot.

124. A method according to claim 123, wherein the axis of rotation is positioned closer to the opening than the part adapted to exert the friction.

125. A method according to any of claims 114-124, further comprising the step of a user 5 accessing the holding means through an elongated opening or slot extending in a longitudinal direction of the holding means, when it is received in the slot.

126. A method according to any of claims 114-125, wherein the dispenser maintains the holding means in a bent shape when received in the slot.

10 127. A dispenser according to any of claims 1-63, further comprising a biasing means adapted to be biased by the holding means when received in the slot and which is adapted to move the holding means in a direction out of the slot, when the releasing means are operated.

15 128. A dispenser according to any of claims 1-63, wherein the releasing means comprises one or more push buttons, pushing the one or more buttons toward or into the dispenser releasing the engaging or biasing means.

20 129. A dispenser according to any of claims 1-63, wherein the releasing means comprises one or more rotatable members, rotation of the rotatable member(s) releasing the engaging or biasing means.

25 130. A method according to any of claims 64-126, further comprising the step of biasing a biasing means during insertion of the holding means in the slot, an outputting step comprising the step of the biasing means pushing, upon operation of the releasing means, the holding means in a direction out of the slot.

30 131. A method according to any of claims 64-126, wherein the releasing step comprises pushing one or more push buttons toward or into the dispenser in order to release the engaging or biasing means.

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132. A method according to any of claims 64-126, wherein the releasing step comprises rotating one or more rotatable members in order to release the engaging or biasing means.

SUMMARY

A dispenser with child protection and a method of operating the dispenser. Friction engagement, engagement using leaf springs or rotatable elements, or engagement directly on e.g. blisters on blister packs are used. Also, biasing against an edge portion and displacement of the holding means edge portion is described in order to remove the engagement. Release mechanisms not visible to children are described as well as the use of multiple independent release mechanisms, which makes release more difficult for children.

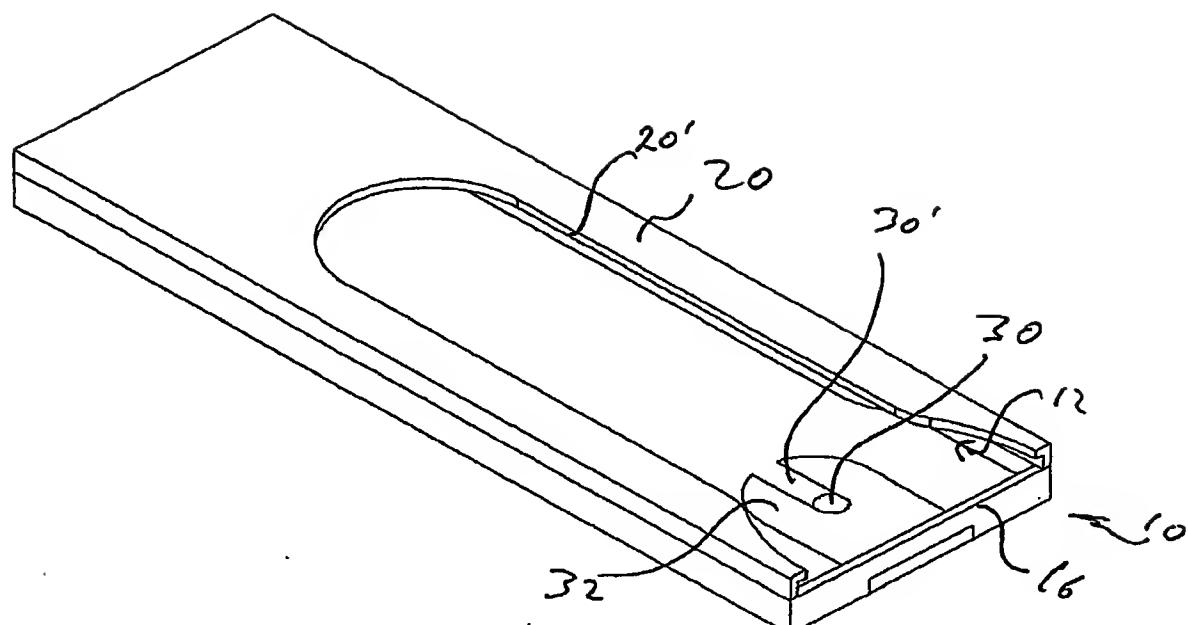


Fig. 1

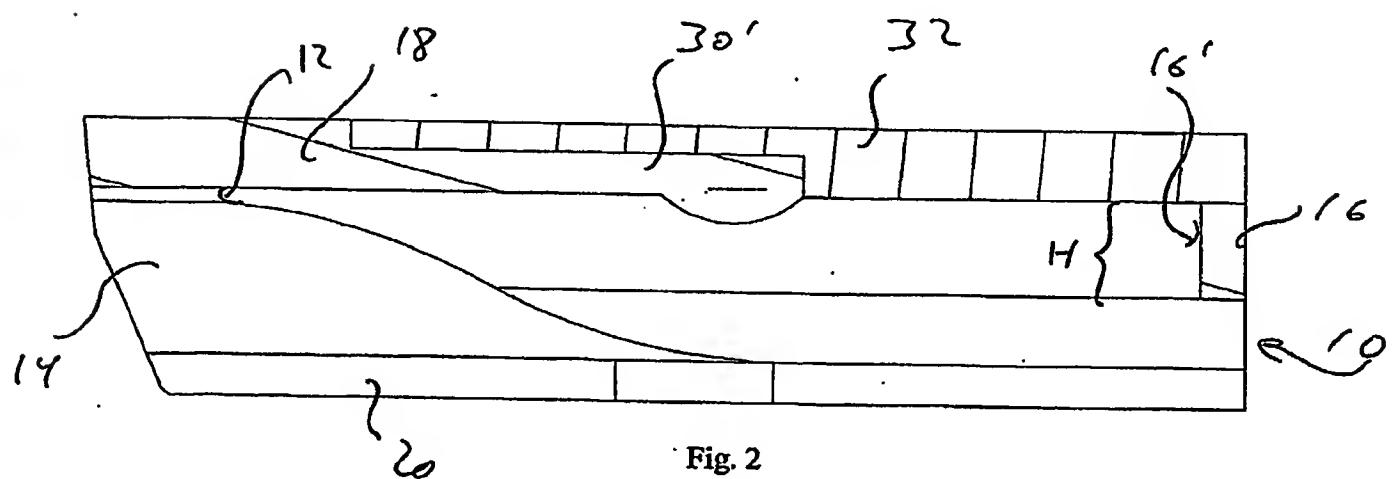


Fig. 2

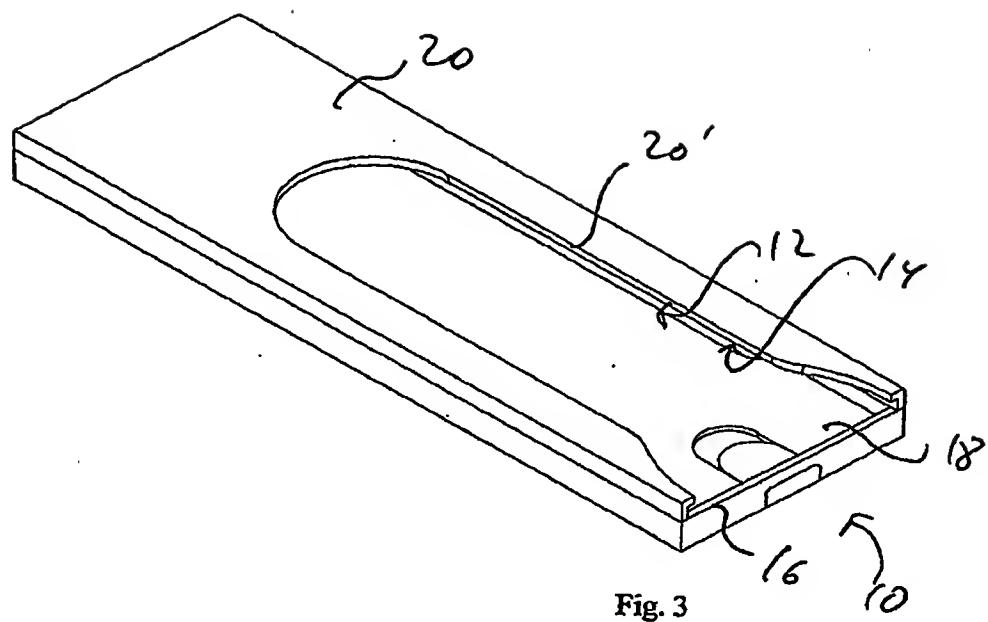


Fig. 3

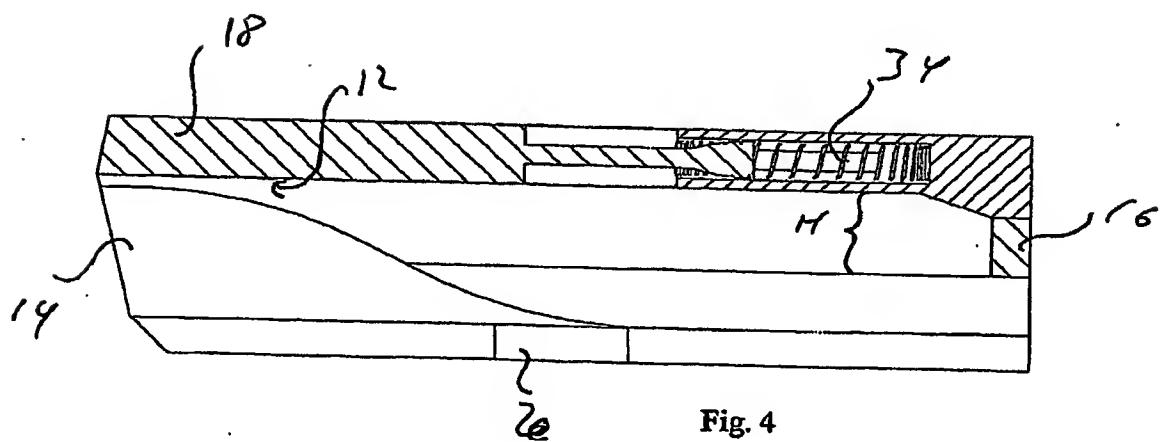


Fig. 4

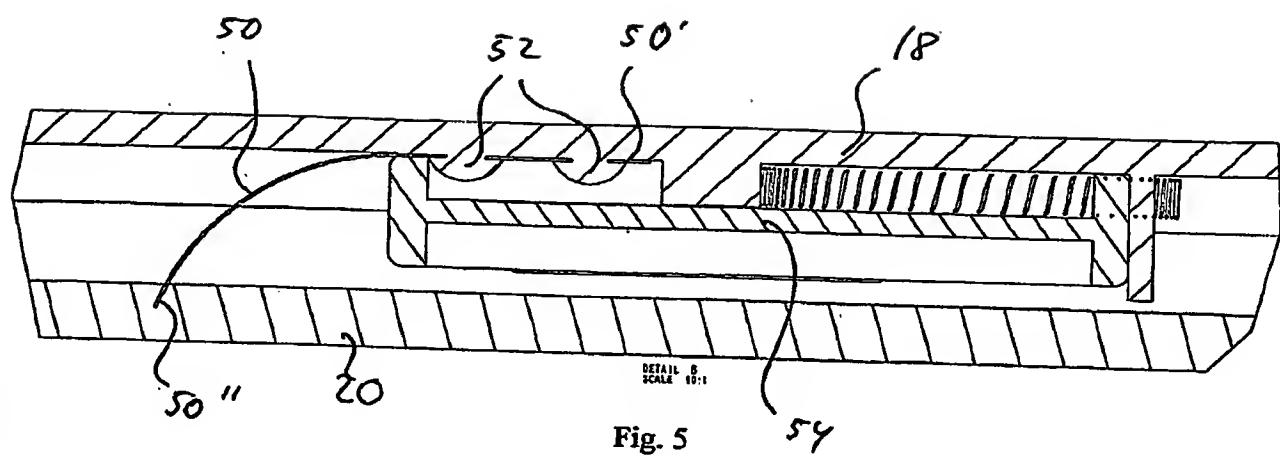


Fig. 5

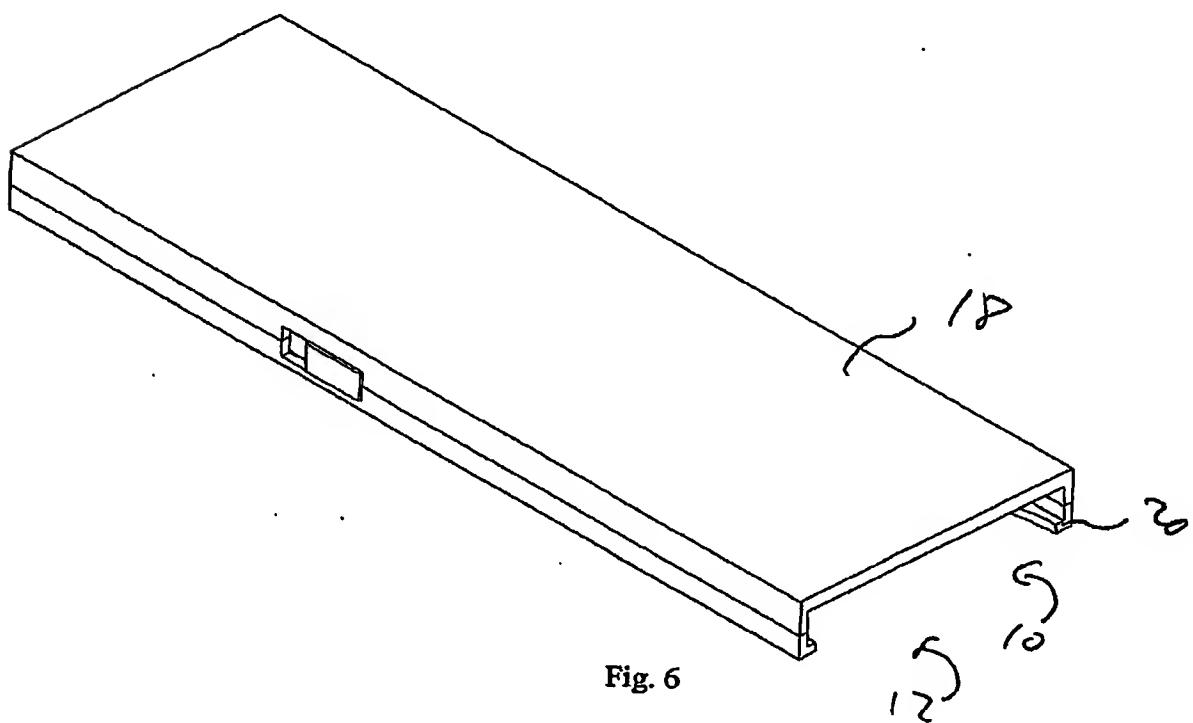
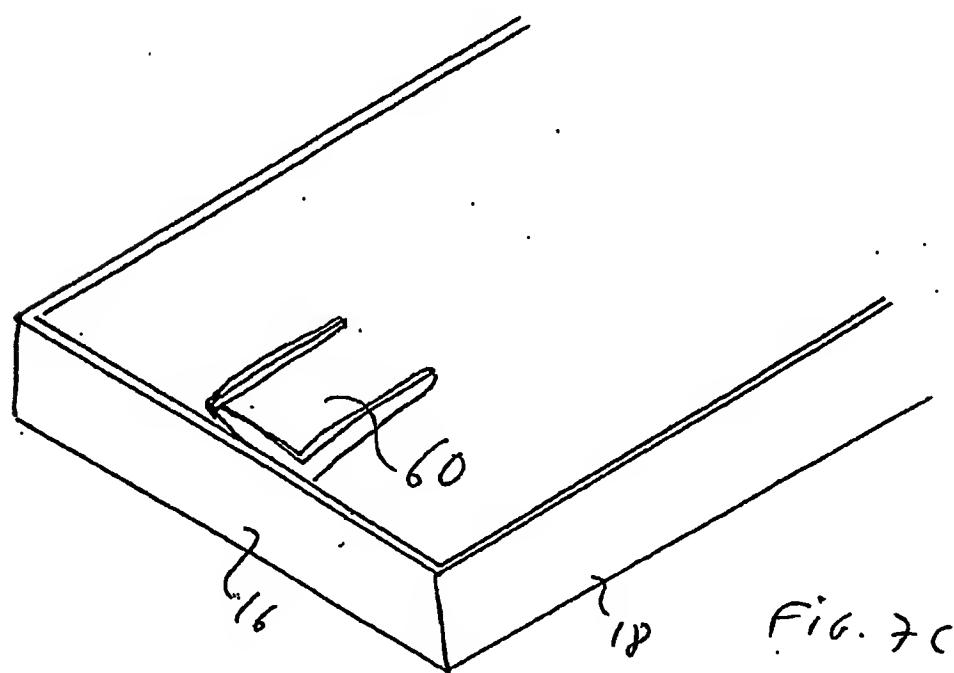
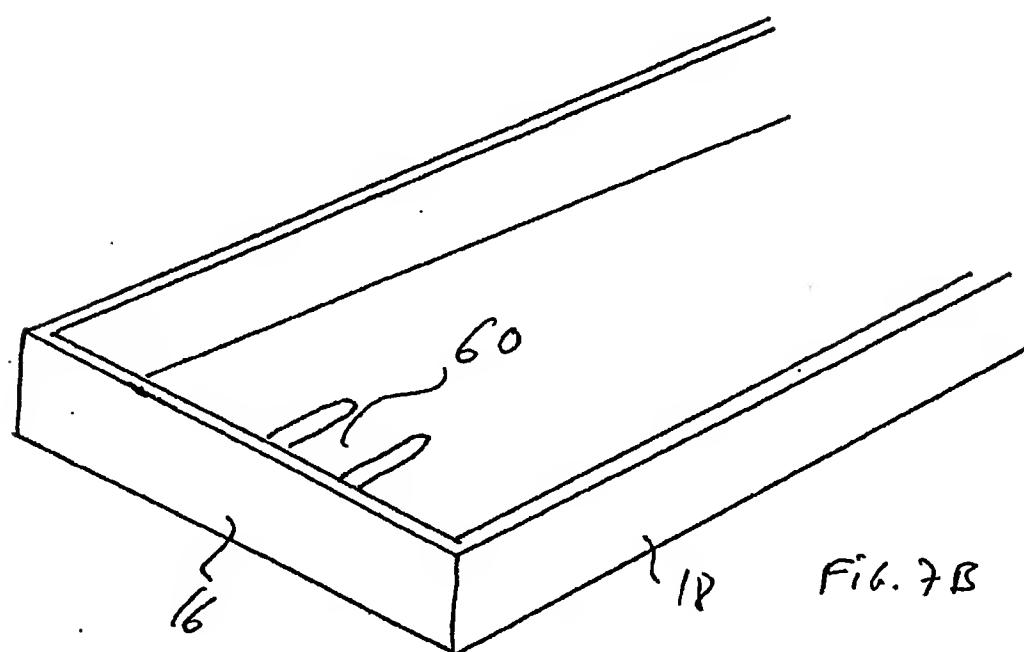
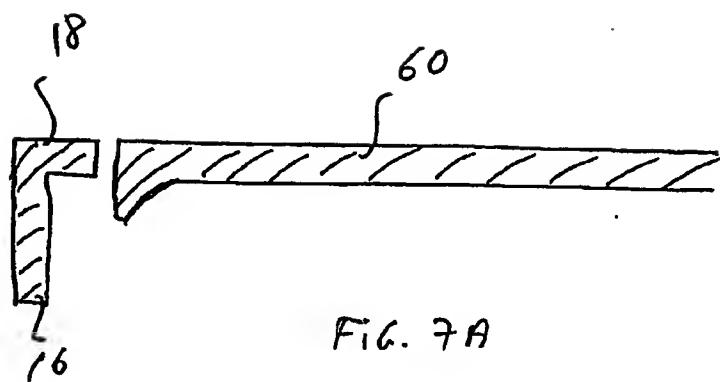
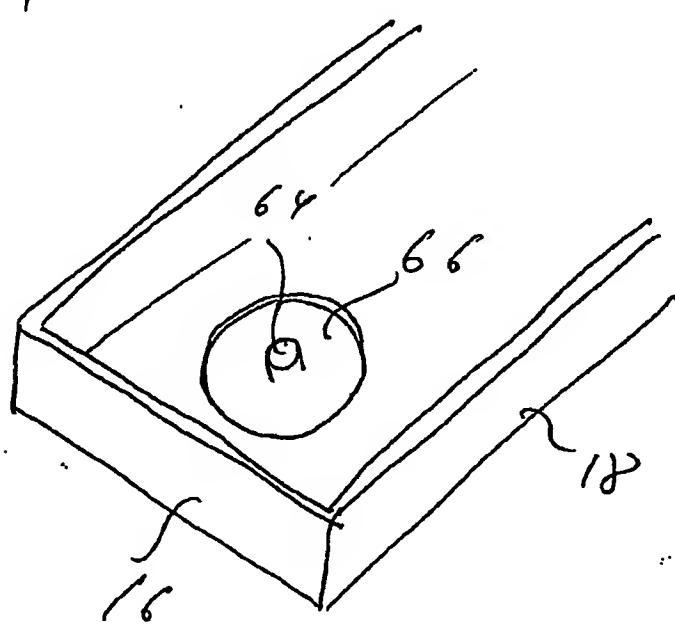
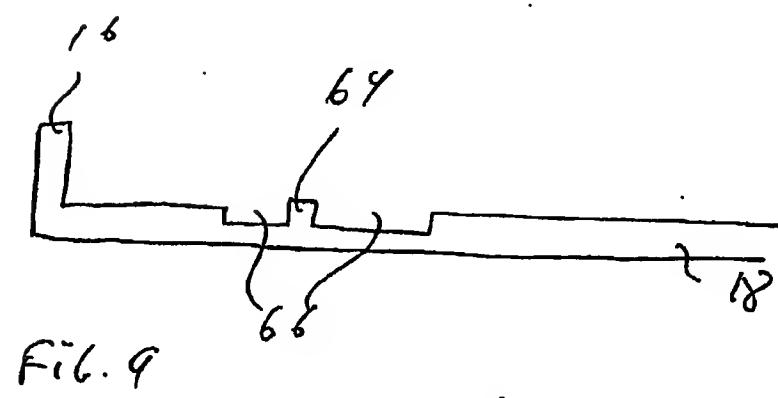
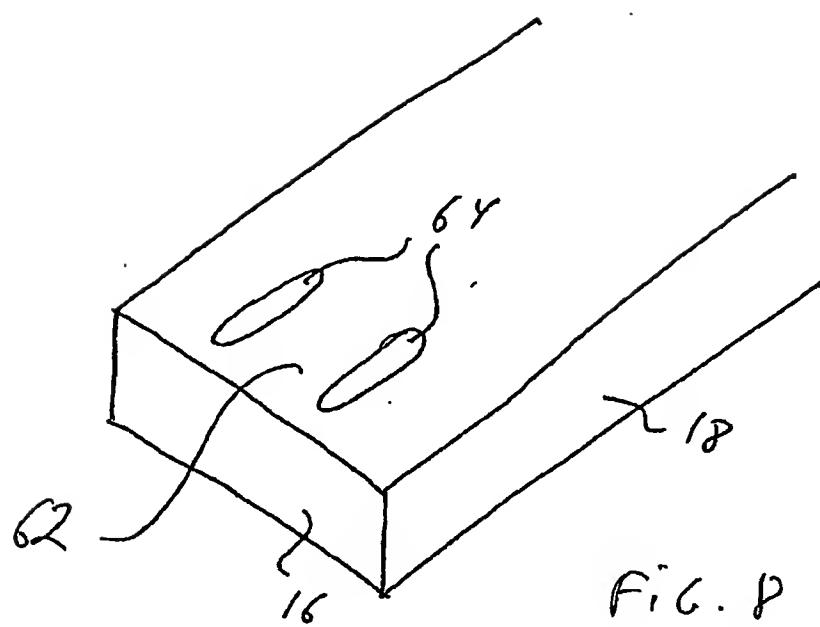


Fig. 6





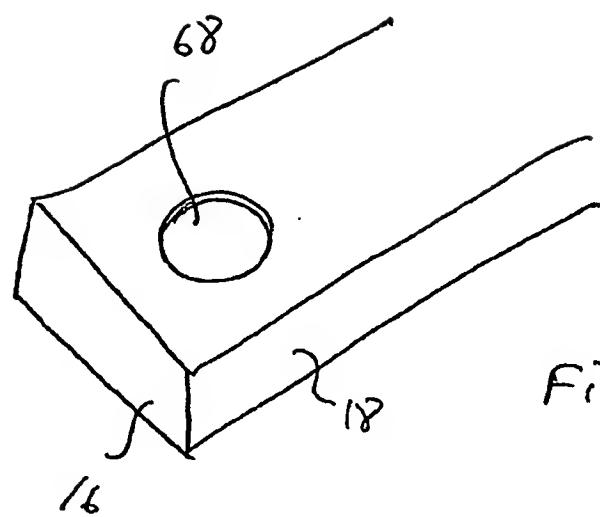


Fig. 10

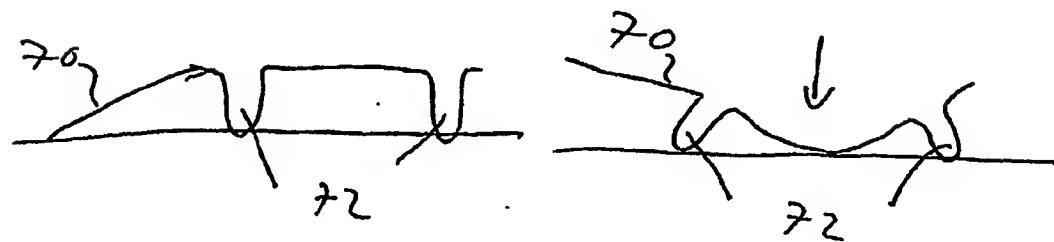


Fig. 11

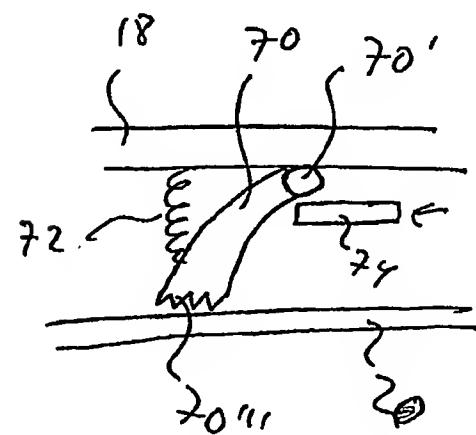


Fig. 12

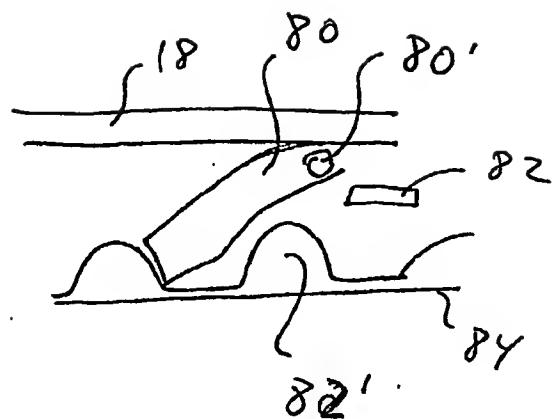


FIG. 13

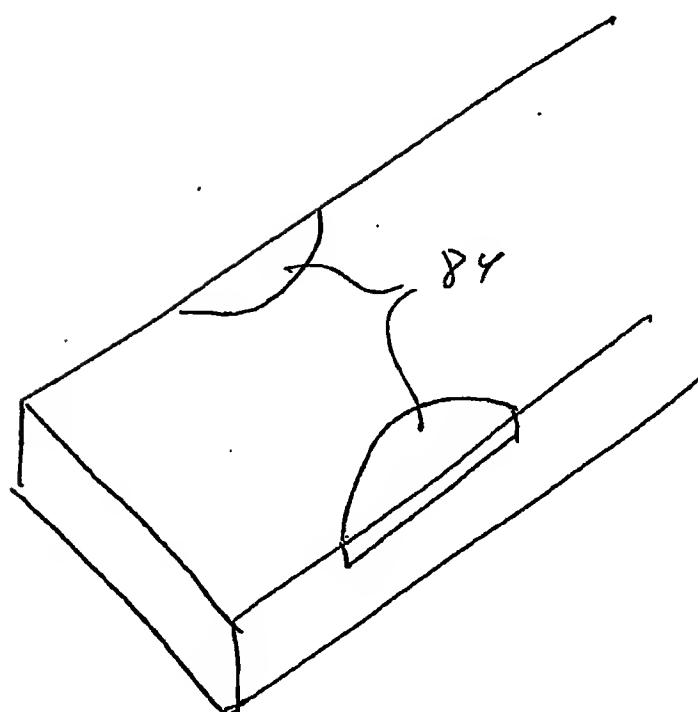
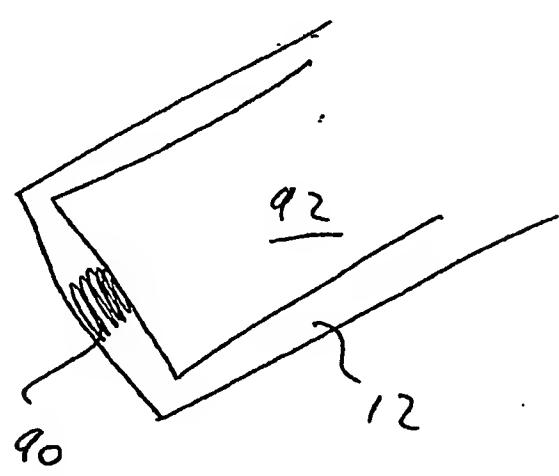


FIG. 14

Fig. 15



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